HEPA-PLEAT II®
RISING ABOVE THE PACK

NEW DIMENSIONS FOR FILTER PERFORMANCE

HEPA®
The HEPA-PLEAT II® line of filters is the most versatile, all-around line of mini-pleat filters on the market today. HEPA-PLEAT II® is manufactured by HEPA Corporation, recognized worldwide as producers of top quality, high performance HEPA (High Efficiency Particulate Air) filters for high velocity and clean room installations.

**NEW 5” AND 7 1/2” DEPTHS**

In addition to the standard shallow mini-pleat filters in the HEPA-PLEAT II® line, HEPA Corporation has moved beyond the industry depth barrier with the addition of 5” and 7 1/2” deep pack products offering more design flexibility and increased performance. HEPA-PLEAT II® filters are now available in six different pack depths from 1/4” to 7 1/2” from ASHRAE through HEPA and ULPA efficiencies to 99.9999% +%. This depth range provides more choices for meeting velocity, air flow, pressure drop, efficiency and frame size.

**HEPA-PLEAT II® FEATURES**

- Increases air flow while decreasing size and weight requirements.
- Produces the highest air flow for high velocity applications in the smallest package.
- Allows for smaller, lighter frames for easier handling, installation and reduced freight costs.
- Offers advanced filter design flexibility for new installations, easy replacement and upgrades.
- Outperforms standard separator type filters which may be twice as deep.
- The 5” or 7 1/2” deep pack significantly lowers resistance and increases filter efficiency in low velocity clean room installations outperforming any other mini-pleat construction method on the market today.
- Saves energy dollars with lower pressure drops when installing the 5” and 7 1/2” deep packs.

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**CORRUGATED SEPARATOR VS. MINI-PLEAT FILTERS**

**CORRUGATED SEPARATOR STYLE FILTER HEPA-SEP®**

In a conventional HEPA-SEP® filter, surface area is dramatically increased by pleating a continuous strip of media back and forth over corrugated spacers to position and separate the media. The result is an accordion-like pack that provides enormous filter capacity. Since the number of pleats is physically limited within a given filter area, the air flow is also limited. By increasing the filter depth (the dimension parallel to air flow), the air flow can be increased further.

**MINI-PLEAT STYLE FILTER HEPA-PLEAT II®**

The HEPA-PLEAT II® mini-pleat filter uses thin strips of adhesive to separate the pleats instead of corrugated separators as in the HEPA-SEP® filter. The pleats are separated, supported and bonded together by these tiny adhesive strips which give the pack a thin profile and a “separatorless” appearance. More importantly, by eliminating the corrugated separators, as much filter media can be packed into a HEPA-PLEAT II® in 1/5 the depth of the HEPA-SEP® filter. A HEPA-PLEAT II® 2 1/4” filter pack will perform as well as a 5 1/2” deep HEPA-SEP® filter, and a 5” pack is equivalent to an 11 1/2” deep HEPA-SEP®. A 7 1/4” pack is the counterpart of the 11 1/4” HIGH CAPACITY HEPA-SEP®. The HEPA-PLEAT II® has many distinct advantages in meeting today's clean air environment needs and is ideal for situations where space, weight and energy savings are critical requirements.
Every HEPA-PLEAT II® filter starts as a custom design. HEPA computes air flow, pressure drop and filter efficiency requirements for each application and provides the optimum filter for the job. The size and weight of these filters allows amazing flexibility for new installations, and existing installations can be easily upgraded by retrofitting with the more efficient HEPA-PLEAT II® filters. Problems of size, shape, material, air flow, efficiency and pressure drop can be solved with HEPA-PLEAT II® better than any other filter on the market today.

In a word, HEPA-PLEAT II® mini-pleat filters offer unique versatility. The smaller, lighter-weight, energy efficient HEPA-PLEAT II® filters are used today in the medical, chemical, space, nuclear, food processing and semiconductor fields.

The need for effectively and economically reducing airborne contaminants has also resulted in HEPA-PLEAT II® filters in clean rooms and clean work stations in such diverse applications as original equipment computer manufacturing, mushroom farming and infection control.

**APPLICATIONS FOR HEPA-PLEAT II® 5” AND 7½” PACKS**

**NEW CLEAN ROOM INSTALLATIONS**

By incorporating the new HEPA-PLEAT II® 5” or 7½” pack in new construction, considerable energy savings are achieved compared to the conventional HEPA-SEP® separator type filter or more common 2” and 3” mini-pleat filter depths. HEPA-PLEAT II® 5” and 7½” depths allow for custom design for very low pressure drop and are available from ASHRAE through HEPA and ULPA efficiencies to 99.9999%.

**UPGRADING EXISTING INSTALLATIONS**

Older clean rooms can be upgraded to a higher efficiency by retrofitting with the HEPA-PLEAT II® 5” or 7½” packs. HEPA-PLEAT II® can be designed to increase efficiency with no increase in pressure drop, thus requiring minimal or no change in the mechanical equipment. This is made possible because the deep pleats offer outstanding flexibility in the selection of filter media and pressure drop. This savings in the cost of equipment and energy is available in both high and low velocity applications.
THE HEPA-PLEAT II®
MINI-PLEAT AIR FILTER

HEPA's filters are the standard of the industry for applications requiring an ultra clean environment, and the HEPA-PLEAT II® air filter line reaches new levels of versatile performance and efficiency. Each filter is assembled and finished by trained, experienced, skilled HEPA craftsmen. Each filter goes through 100 per cent inspection.

HEPA-PLEAT II® filters are available in a broad spectrum of glass media ranging in efficiency from ASHRAE through HEPA and ULPA to 99.99999 + % and made into pack depths from 1 ¼” to 7 ½”
HEPA assures quality by controlling every aspect of manufacturing. Metal, wood and plastic frames are built in HEPA shops. Dies for molding plastic housings are crafted by HEPA selected toolmakers then molded in HEPA shops. Finally, HEPA manufactures the shipping containers to safeguard the filters during delivery. There are no better filters made.

HEPA-PLEAT II® is available with various frame materials such as steel, wood, aluminum and plastic with single and double turned flanges and headers in sheet metal and extruded forms.
ENERGY SAVINGS CALCULATIONS

The fan horsepower required to produce air flow through each filter can be estimated with the following formula:

\[
\text{Fan Horsepower} = \frac{(\text{Air Flow, CFM}) \cdot (\text{Pressure Drop, Inches W.G.})}{(\text{Fan Efficiency}) \cdot (6,356)}
\]

**HIGH VELOCITY HEPA-PLEAT II® 5" AND 7½" PACKS**

Note: Nominal Air Flow All Test Filters = 1000 CFM.

- **Filter #1**
  - HEPA-SEP® 24 x 24 x 5¾ Standard
  - 99.97% @ .3 Micron Efficiency
  - Filter Pressure Drop: 1.47" W.G.

- **Filter #2**
  - HEPA-SEP® 24 x 24 x 11½ Standard
  - 99.97% @ .3 Micron Efficiency
  - Filter Pressure Drop: 0.85" W.G.

- **Filter #3**
  - HEPA-PLEAT II® 5" Pack 24 x 24 x 5¾
  - 99.97% @ .3 Micron Efficiency
  - Filter Pressure Drop: 0.80" W.G.

- **Filter #4**
  - HEPA-PLEAT II® 7½" Pack 24 x 24 x 8
  - 99.97% @ .3 Micron Efficiency
  - Filter Pressure Drop: 0.63" W.G.

**LOW VELOCITY HEPA-PLEAT II® 5" AND 7½" PACKS**

- **Filter #1**
  - HEPA-SEP® 24 x 24 x 5¾ 0.517" W.G.
  - @ 100 FPM

- **Filter #3**
  - HEPA-PLEAT II® 5" Pack 24 x 24 x 5¾
  - 0.25" W.G. @ 100 FPM

- **Filter #4**
  - HEPA-PLEAT II® 7½" Pack 24 x 24 x 8
  - 0.19" W.G. @ 100 FPM

**FAN HORSEPOWER**

- **Filter #1**
  - \((352 \text{ CFM}) \cdot (0.517")) = 0.03578 \text{ FHP}
  - \((0.80) \quad (6,356)\)

- **Filter #3**
  - \((352 \text{ CFM}) \cdot (0.25") = 0.01730 \text{ FHP}
  - \((0.80) \quad (6,356)\)

- **Filter #4**
  - \((352 \text{ CFM}) \cdot (0.19") = 0.01315 \text{ FHP}
  - \((0.80) \quad (6,356)\)

Fan Energy Requirement for HEPA-PLEAT II® 5" is **52% less**, and the requirement for HEPA-PLEAT II® 7½" deep filter is **63% less**, under normal operating conditions, than comparable corrugated separator type filters such as the HEPA-SEP®

Examples have been taken from actual productions. Pressure drops for individual filters will vary slightly due to media resistance variability.
HEPA CORPORATION
FAMILY OF QUALITY AIR FILTERS

HEPA-GARD®
meeting the lower efficiency needs of
ASHRAE applications

HEPA-SEP®
conventional separator-type filters

HEPA-PLEAT II®
innovative and versatile performance for
all mini-pleat filter applications

HEPA-SPECIALS
cylindrical, computer disk drive, nuclear
grade and high temp filters to meet
individual requirements

HEPA-HOODS
economical, completely assembled, low
profile, disposable filter ceiling modules
with damper control and test ports

HEPA-GEL
self-healing sealant material alternative
to more commonly used rubber gaskets
(knife edge design available)

Contact your local air filter distributor or HEPA
Corporation to assist with your air filter
requirements.
VOLUME AIR FLOW CALCULATIONS

To determine the filter volume flow rate using Velocity Factor \( V_f \) and Area \( A \), the following formula may be used:

\[
Q = V_f \times A
\]

Where:
- \( Q \) = Air Volume Flow Rate (Cubic Feet Per Minute, CFM)
- \( V_f \) = Filter Face Velocity (Feet Per Minute, FPM)
- \( A \) = Filter Face Area (Square Feet, FT²)

Example: To determine the Air Volume of a 24 x 24 HEPA-PLEAT \( 11^{\circ} \) 5" pack @ 1.0" W.G. Pressure Drop:

\[
A = \frac{22.5 \times 22.5}{144} = 3.52 \text{ sq. ft.}
\]

Filter Velocity \( V_f = 340 \text{ FPM} \)
Air Volume Flow Rate = \( 340 \times 3.52 = 1200 \text{ CFM} \) (from Graph) @ 1.0" W.G.

Velocity Factors for HEPA-PLEAT \( 11^{\circ} \) pack depths with standard pleat density:

\[
\begin{align*}
2 \frac{1}{2}" \text{ Depth} & = 190 \text{ FPM} \\
5" \text{ Depth} & = 340 \text{ FPM} \\
7 \frac{1}{2}" \text{ Depth} & = 426 \text{ FPM}
\end{align*}
\]

In the low velocity graph, the filter pressure drop may be determined at a specific velocity.

Example: On the curve of the HEPA-PLEAT \( 11^{\circ} \) 7 1/2" pack @ 100 FPM, the pressure drop is 0.19 W.G.

In both high and low velocity applications, performance is based on standard pleat density:
- 5" Depth: 24 x 24 Filter = 194 sq. ft.
- 7 1/2" Depth: 24 x 24 Filter = 279 sq. ft.

Greater media area (increased pleat density) is available for lower pressure drop.
### STANDARD FILTER SPECIFICATIONS

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<th>MODEL IDENTIFICATION</th>
<th>INCHES</th>
<th>MILLIMETERS</th>
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<th>3½&quot; PACK</th>
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### HEPA FILTERS ARE DESCRIBED BY THE MODEL NUMBER IN THE WAY WHICH FOLLOWS:

- **FRAME DEPTH**
  - Frame number 1: 1 1/2″
  - Frame number 2: 2 3/4″
- **HEIGHT**
  - B = 3 1/4″
  - C = 3″
  - D = 3 1/4″
- **WIDTH**
  - A = 6 5/8″
  - B = 8 1/2″
  - C = 10 11/16″
- **FRAME MATERIAL**
  - W = Pressed Wood
  - F = Finish Resistant Pressed Wood
  - P = Plywood
  - F = Finish Resistant Plywood
  - E = Extruded Aluminum
  - M = Other Metal
  - S = Plastic
- **SEPARATOR STYLE**
  - A = Aluminum
  - B = Non-Metal
  - C = HEPAC-XLII
- **GASKET LOCATION**
  - R = None
  - D = Downstream
  - U = Upstream
  - G = Both Sides
- **FILTER EFFICIENCY**
  - A = 95% or 99%
  - B = 99.5%
  - C = 99.9%
  - D = 99.99%
  - E = 99.999%
  - F = 99.9999%
  - G = 99.99999%
  - H = 99.999999%
- **CUSTOM SPECIFICATIONS**
  - L = Low Error
  - M = Middle Error
  - E = Error

**EXAMPLE:** HD4BW4/5055 means 24″ x 48″ x 5 7/8″, pressed wood frame, aluminum separator, gasket downstream, 99.99% scan, and example, faceguard.

**NOTE:** Avoid filters and select other items utilizing a different model identification system.

HEPA Corporation reserves the right to change or discontinue any model or specification at any time without notice.

### TESTING

HEPA filters are tested with thermally generated D.O.P. (Diocetyl Phthalate) in accordance with the latest industry Standards (IES-RE-CC-001-86) and Military Standards (MIL-F-51068 and MIL-STD-282) to meet 99.97% or better efficiency on 0.3 micron particles. Scanned 99.99% filters are further tested in accordance with Federal Standard 209B. “O” Probe Scan and Laser testing are also offered.

When seeking cost-effective, advanced technology in air filtration, HEPA Corporation has the options that make good business sense. HEPA’s dual shipping facilities and short manufacturing lead times provide users with on-time shipment confidence. And HEPA Corporation’s 100% performance guarantee insures that the product is built to specifications and certified by HEPA quality control engineers.